NaturaLink™

Getting Started Guide

For the MS-One

Revision 10/2006

NATURALINK™
Getting Started Guide for the MS-One

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Introduction

Welcome to Sawgrass Technologies, Inc. and NaturaLink™. We are excited to offer our direct to cotton solution for your business. We look forward to working with you and a continued partnership in digital imaging.

The NaturaLink™ Getting Started Guide contains information for using NaturaLink™ inks and helpful tips for getting the best printing results possible. The information provided pertains only to the use of NaturaLink™ inks in your printer.

PowerDriver MS-One™ is included with NaturaLink™. Developed by Sawgrass Technologies, PowerDriver MS-One™ is user-friendly software that enables you to maximize output quality and quantity. Please refer to the detailed instructions provided in this manual or on your PowerDriver MS-One™ CD to customize each print.

Technical support is available from your Authorized NaturaLink™ reseller or directly from Sawgrass Technologies, Inc. See the section entitled *Technical Support* for additional information. Please feel free to contact us with your feedback about our products. For additional information on NaturaLink™ or our other products, visit our web site at www.sawgrassink.com. Thank you and enjoy NaturaLink™.

About this Document

This document contains descriptions and procedures for using NaturaLink™, along with additional information on setting up your MS-One printer and for getting the best results from use of this system. The documentation provided pertains only to the use of your MS-One printer and NaturaLink™.

To help point out important information, specific instructions, and helpful tips look for the following symbols:

SUGGESTION / REMARK: **suggestion to optimize the operations of this machine.**

WARNING: **important warning to avoid procedure mistakes.**

DANGER: **hazard which could seriously compromise the use of the machine and/or the physical safety of the operator.**

Indicates useful tips for printing.

MS-One PRINTER

Overview

The instructions and information included in this manual will assist you in effectively operating this machine.

The machine and inks must be stored and operated in temperature controlled room, free from excessive temperature variations (under 50° F and over 86° F), and free from dust and vibrations which may jeopardize the functionality of the machine.

It is critical before operating this machine and after changing garment materials to carefully check the print head height. Any touching or scraping of any surface including the jig will damage the print head and its repair or replacement will not be covered by warranty.

If the machine is not going to be used for an extended period of time, disconnect the power and completely remove the inks from the machine. Also clean the ink feed lines by placing the leavers in the lower position and powering the printer off. The ink lines will then empty into the waste ink tank and will need to be purged per the *Waste Ink Tank* instructions.

Before each print ensure that the jig is positioned at the zero point corresponding with the photocell.

USE ONLY SAWGRASS SUPPLIED INKS! THE USE OF OTHER INKS WILL DAMAGE THE PRINTER AND WE WILL NOT BE LIABLE FOR ANY DAMAGES INCURRED OR PRODUCTION LOST.

Other Requirements

Before starting the setup process you will need to obtain the following:

- One – USB Printer Cable

STORING, UNPACKING AND POSITIONING OF THE MACHINE

1. Store the box, containing the machine, horizontally in a closed area protected from atmospheric elements.
2. Open the box containing the machine and visually inspect the machine to determine any damage during the transportation.
3. Remove the clamps/straps that lock the machine to the wooden pallet.
4. Remove the machine using the four black handles placed on the sides of the printer.
5. Place the machine on a sturdy table approximately 2.5-3 ft from the floor supporting the front feet completely on the table. (**PHOTO 1.A**)

For proper printer operation, it is mandatory to place the machine on a flat and level surface.

Due to the heavy weight of the machine, use extreme caution while moving the machine. Always use all four handles and proper lifting techniques.

The inks are heat sensitive. If subject to extreme temperatures, they will loose partial or complete functionality. See the section entitled *Operating Conditions.*

When not in use for extended periods, the inks must be removed and properly stored. See the section entitled *Storage.*

PHOTO 1.A

ADJUSTMENTS BEFORE STARTING

Belt Level

Verify the level of the printing surface (belt conveyor and jig support).

The belt conveyor supplied comes aligned and level. However, it is possible that during transportation the level could vary. In this case, verify by means of a tape measure that the belt height at the front feet and the height of the plain for the entire length of the belt are the same (differences of few millimeters are acceptable).

If the belt is not flat on right or left side:

1. Loosen the eight screws which support the belt (**PHOTO 2.A**)

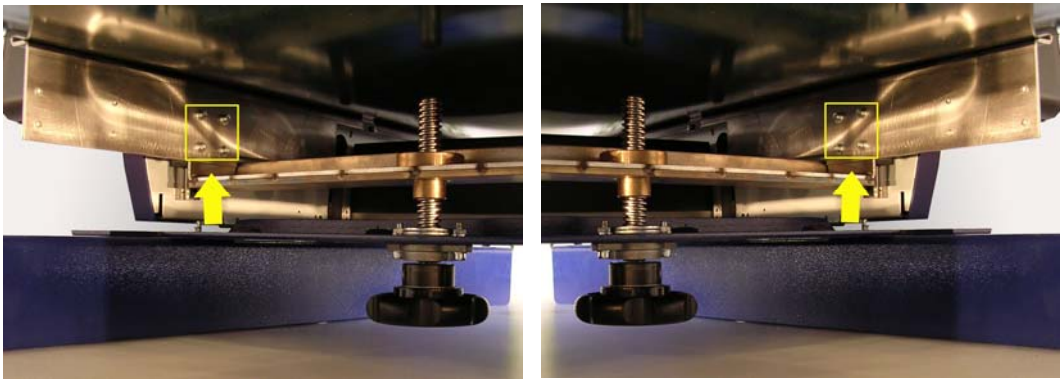


PHOTO 2.A

2. Adjust the belt plane verifying by means of a fluid level (**PHOTO 2.B**)

PHOTO 2.B

3. Once the belt is level, tighten the screws. (**PHOTO 2.A**)

4. Verify result of the operation using a fluid level. Repeat from step 1 as needed.

PRELIMINARY OPERATIONS

1. Open the upper cover
2. Release the print head carriage lock by loosening the two screws (**PHOTO 5.A**)

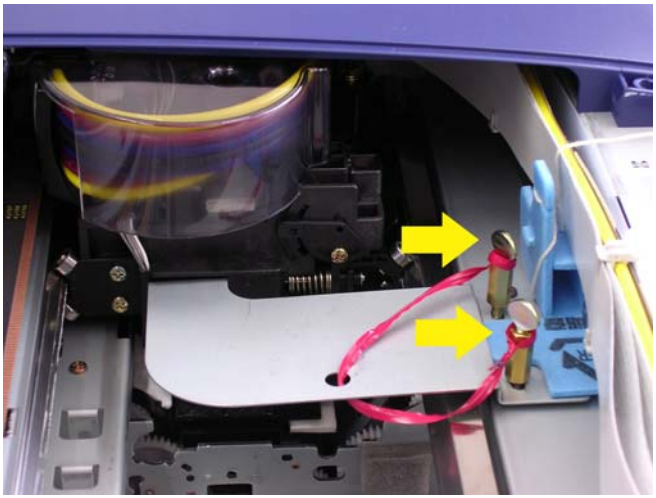


PHOTO 5.A

3. Pull the green tag until it clicks (**PHOTO 5.B**)

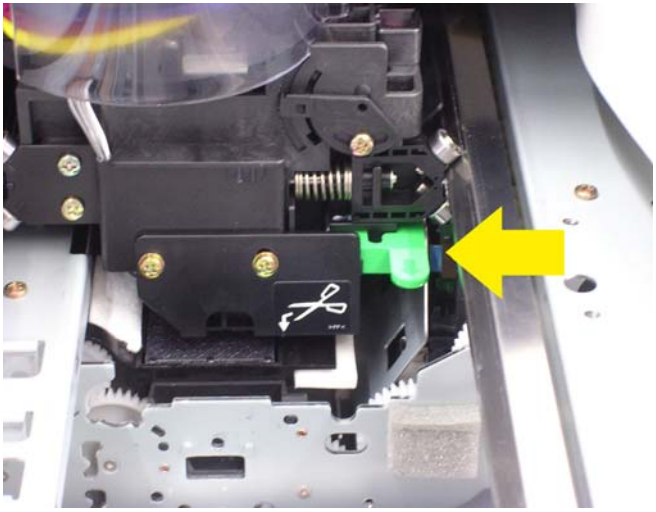


PHOTO 5.B

Starting the Machine

1. Power up the machine by plugging it into an outlet.

In case of frequent power surges or outages, use a UPS (uninterruptible power supply).

CONTROL BOARD

Every time the machine is switched on, the following operations have to be carried out:

1. Press key **1** to turn the printer “ON”.
2. Wait until the display shows “READY”.
3. Verify that under the “READY” display, the icon appears (roll feed).

If the printer is set to or the machine will display an error. Press the **3** button until the proper icon appears in the display.

Language Selection

If the preset language is not the desired language, modify it as follows:

1. Turn on the machine by pressing key **1** “POWER” and key **2** “PAUSE” simultaneously to enter the **configuration menu**

2. Press key **5** until “LANGUAGE” is displayed.

Note: The arrow menu buttons only move up. If you pass your selection, you will have to continue to arrow up until it your selection is displayed again.

3. Press key **6** “MENU” is displayed.

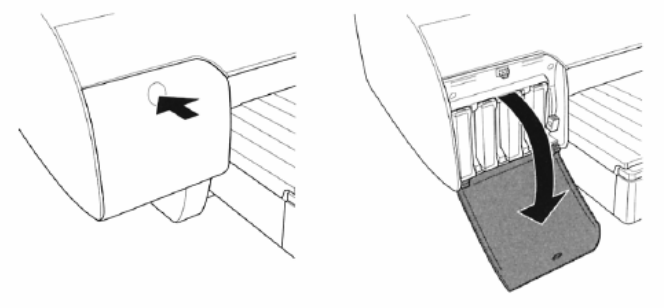
4. Press key **5** to select the desired language.

5. Press key **6** to confirm the selection.

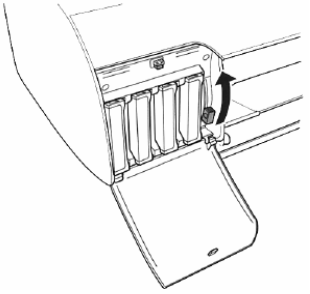
6. Verify the modification by switching the machine off and on again.

INK LOADING

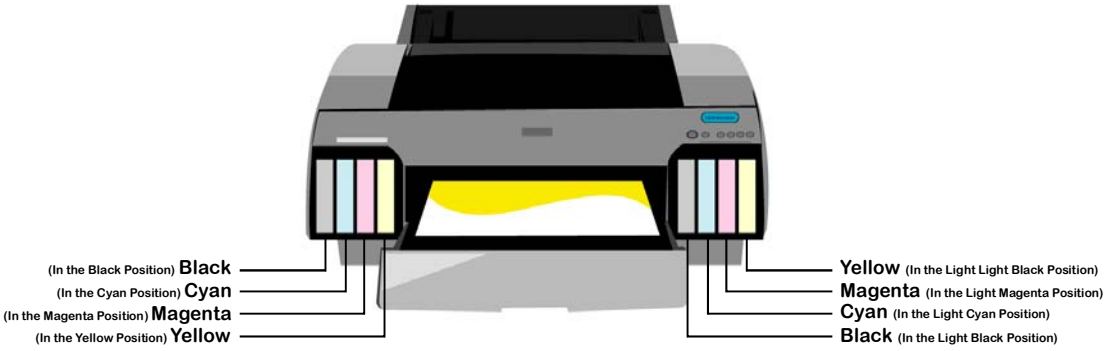
1. Ensure the printer power is on. Press the ink compartment cover to release the latch and open the cover.



2. Raise the ink lever to the unlocked position. The ink lever is located to the right of each ink compartment.

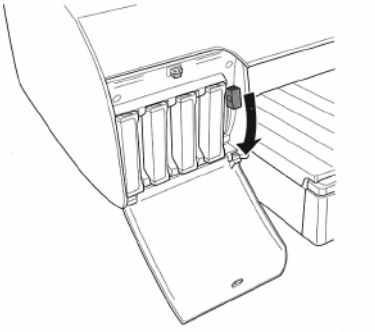


3. Remove the ink cartridge from its packaging and insert it into the slot with the label facing left. Do not force the cartridge into the slot. Start with the black cartridge on the left and attach the cartridges in this order:


(In the Black Position) Black
(In the Cyan Position) Cyan
(In the Magenta Position) Magenta
(In the Yellow Position) Yellow
Yellow (In the Light Light Black Position)
Magenta (In the Light Magenta Position)
Cyan (In the Light Cyan Position)
Black (In the Light Black Position)

If the cartridge does not insert smoothly into the slot, double check to make sure you have the correct cartridge installed in the correct slot. If the ink light remains on after installing the cartridge, remove the cartridge and reinsert to ensure it was fully placed in the slot.

4. Lower the ink levers in to the locked position.



5. Close the ink compartment covers.

6. Once the cartridge is installed the printer will return to its READY state.

Initial ink filling procedure

(Refer to page 12 for menu button numbers)

1. Press the key **6** to enter the “MENU”.
2. Press the key **5** (arrow up) till “MAINTENANCE” display.
3. Press the key **6** (enter) to enter the “MAINTENANCE MENU”.
4. Press the key **5** (arrow up) till “PWR CLEANING” display.
5. Press the key **6** (enter) two times to start the inks loading.

The machine will now start to automatically load the inks. The operator will need to execute the operations shown on the display including include lowering or lifting the ink levers placed next to the cartridges. (**PHOTO 4.D**)

Once the inks are fully loaded, the machine will come back to the “READY” state. Once the Printing Procedures have been completed and you are ready Print, a nozzle check pattern should be done to make sure the ink is loaded correctly. See the *Printing a Nozzle Check* section for instructions.

PHOTO 4.D

PRINTING PROCEDURES

Positioning and Adjustments

Check the print head height per the following procedures:

1. Position the jig base (**PHOTO 5.A**) and the jig on the center of the belt (**PHOTO 5.B**). Both are equipped with registers for the perfect alignment of the jig in the support.

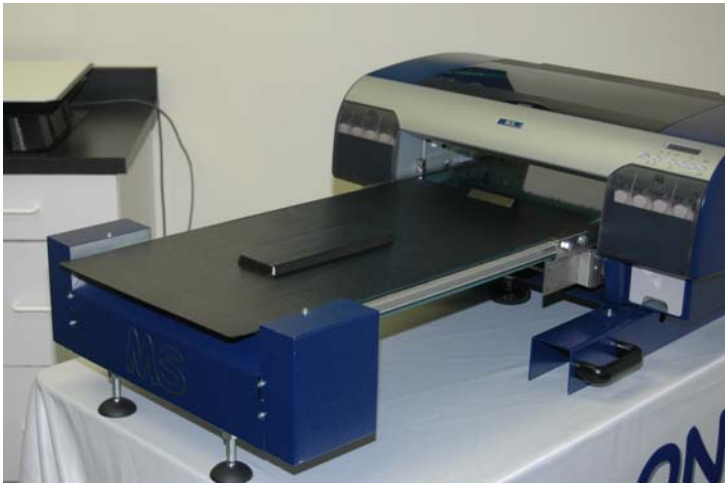


PHOTO 5.A – JIG BASE

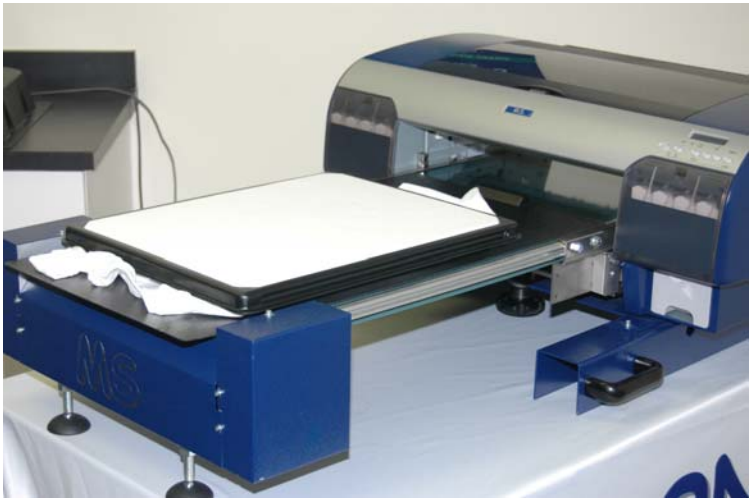
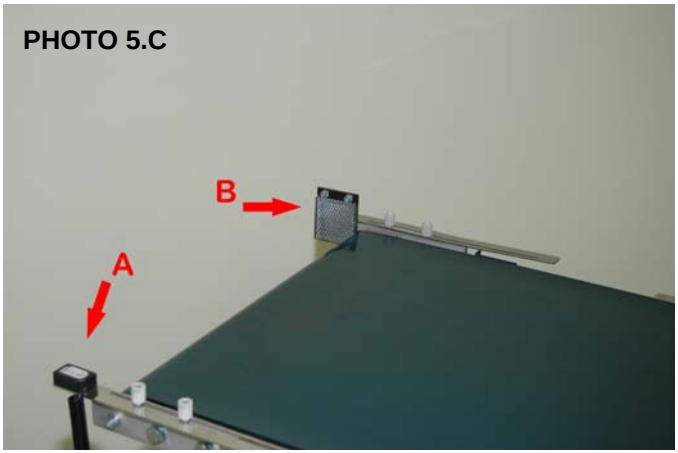


PHOTO 5.B – BASE WITH JIG ATTACHED (See page 20 for instructions on how to load a shirt)

2. Adjust the photocell plane at the rear of the belt drive to match the length of the garment. To do this:

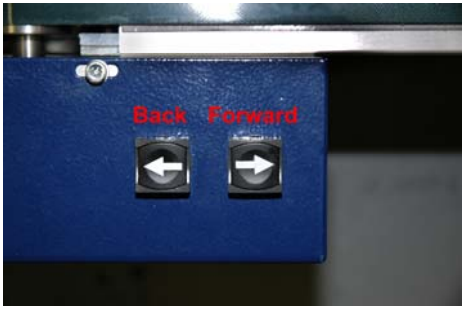
    a. Loosen the fixing screws of the photocell support (A) and reflector (B) (**PHOTO 5.C**)



    b. Position the photocell and the reflector by sliding the guides towards the belt and aligning them. The photocells should be as close as possible to the end of the belt without touching it. The correct alignment of the reflector is indicated by the lighting of the green LED on the photocell.

    c. Tighten the fixing screws.

3. With the machine on and in the “READY” state, press the forward arrow key to cycle the belt and garment support to the “zero” point or printing origin. The belt and garment support will stop automatically by tripping the photocell plane.



Do not press any key until the word “READY” appears on the display.

Verify the tightness of the fixing screws of the photocell support and reflector.

4. Check the height of the print head to avoid contact with the jig. To do this:

   a. Lift the clear top cover on the printer. Then press the black lock screw to free the printing carriage and gently move it towards the center of the printer (**PHOTO 5.D**)

PHOTO 5.D

   b. Check the level of the head to make sure it is higher than the jig by looking at the front of the machine between the jig and the silver bar that runs along the bottom of the printer (**Photo 5.E**) while pressing down on the black lock screw. The bottom of the lock screw should be showing through that gap when pressed down (**Photos 5.F & 5.G**) but should not be touching the jig.
   Note: When a garment is present, the black lock screw should be as close to the garment as possible without actually touching the garment when running the print head across the entire platform.

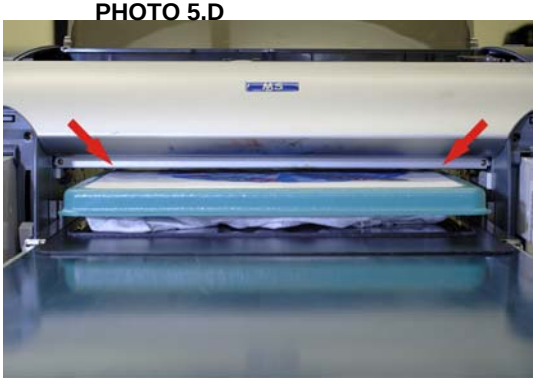


PHOTO 5.E

PHOTO 5.F – Black lock screw up

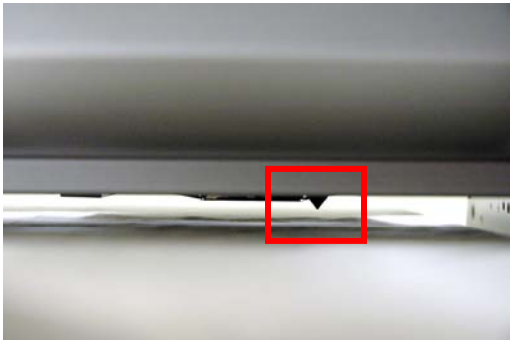


PHOTO 5.G – Black lock screw down

c. To adjust the distance of the print head to the jig, turn the central foot underneath the garment belt. (**PHOTO 5.H**). It is also possible to check the height variation looking at the side gauge. (**PHOTO 5.J**)

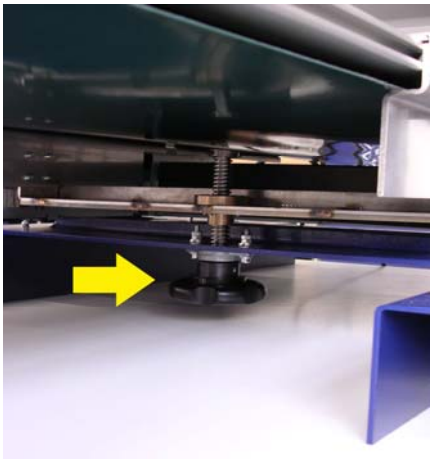


PHOTO 5.H

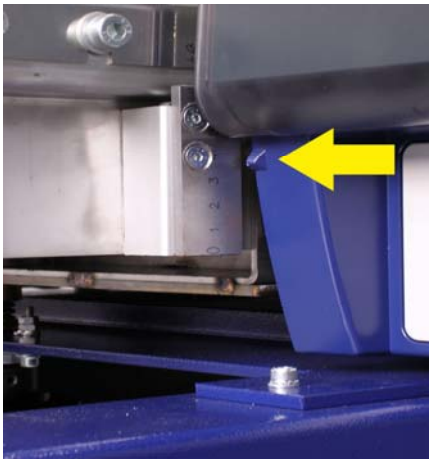


PHOTO 5.J

d. Once it is certain that the carriage is free to run the entire printing width, proceed to the next step. Otherwise execute the adjustments as per items 7 a - c.

5. Return the carriage to its original position. You will hear the click of the carriage locking in its housing

6. Close the upper cover. (The printer will not work with the open cover.)

Before any operation, <u>always</u> check the height of the jig support to be sure it is lower than the printing head. (**PHOTO 5.I**)

The print head touching or rubbing any surface could cause heavy damage and may require replacement.

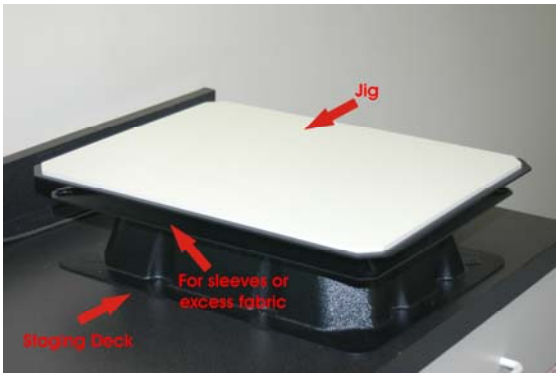
Always check the height of the jig every time it is changed.

PRINTING

1. Place the staging deck on a flat surface.

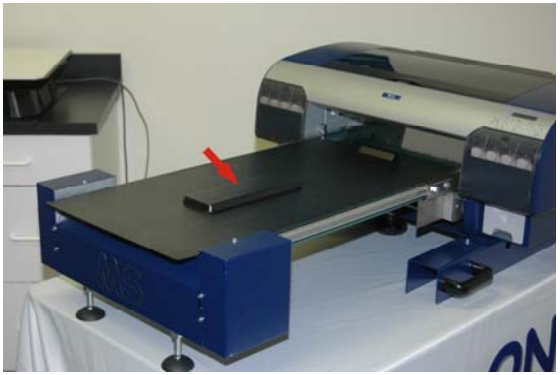
2. Place a garment flat and evenly spread on the base. Place the hoop over the garment so that it fits tight against the base. Ensure that the garment is pulled tight to avoid wrinkles that could interfere with the print head and as a result stain your garment and/or even damage the print head.

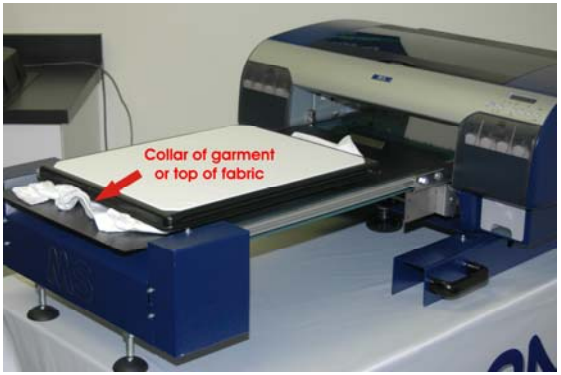
3. Tuck any sleeves or excess fabric under the base so that it doesn't get caught as it passes through the printer.



4. Move the jig from the staging deck to the base on the printer.

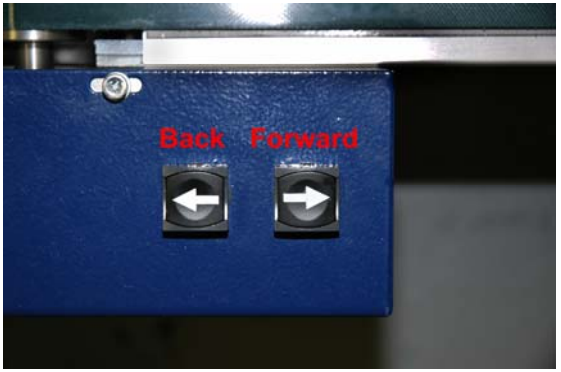
5. Secure the jig to the base on the printer. The collar of the garment or the top of the fabric should be at the outside end of the base.





6. On the back of the printer, you will find two black arrow buttons. To advance the belt forward, press down the forward arrow key. After a few seconds, the jig will begin to move forward until it is completely back to the printing origin (photocell limit).

   Note: If properly configured in the *Printing Procedures* section, the jig will automatically stop when it reaches the photocell.



Pushing the belt feed buttons on the printer or moving the jig before the belt stops can cause a 1001 service code. This means that there is a belt timing error. Restarting the printer will correct this.

To position the jig to print on a specific area of the shirt, you must advance the jig forward and then bring it back into the position needed for printing.

7. Adjust the belt height (see the previous section on *Positioning and Adjustments*) of the jig to add the thickness of the garment to be printed.

8. After all adjustments have been made, send the print job to the printer via PowerDriver MS-One™. For instructions on how to setup PowerDriver MS-One™ and the settings to use for printing, see the *PowerDriver MS-One™ User's Guide* section

9. Once the printing is finished, the printer will automatically bring the jig support forward so that the operator can check the printed results and remove the garment. To remove the garment, advance the jig support by pressing arrow down the back arrow key until it is reversed far enough to remove the garment without obstruction.

10. Carefully remove the garment without touching the image since it will still be wet from printing.

11. Heat press the garment according to the following directions:
    - Standard Heat press: 400 degrees at 40 psi, for 25 seconds.

Must use blotter paper to eliminate ink on heat platen.

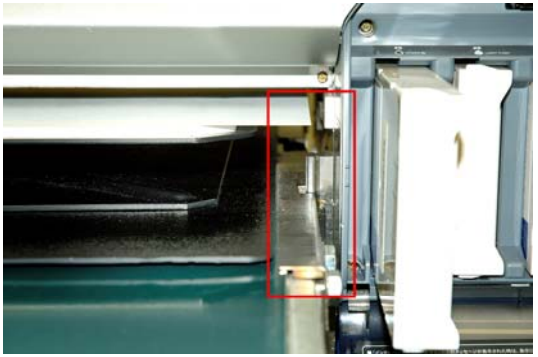
12. Put a new garment on the holder and repeat from step 1.

Do not press any key until the word "READY" appears on the display.

Printing a Nozzle Check

Printing a nozzle check requires the use of paper on a jig so that the full nozzle check pattern will print out. To do this:

1. Place the jig on the printer base with out the hoop or fabric attached.

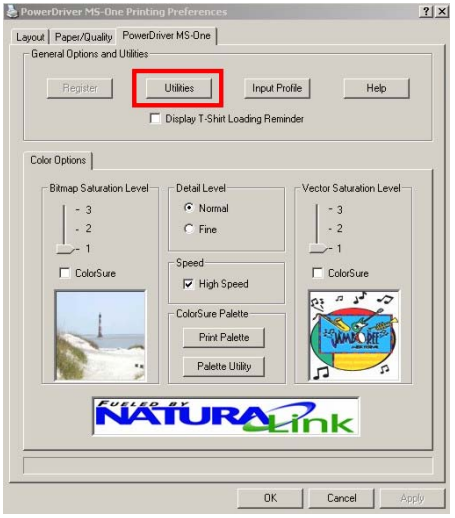


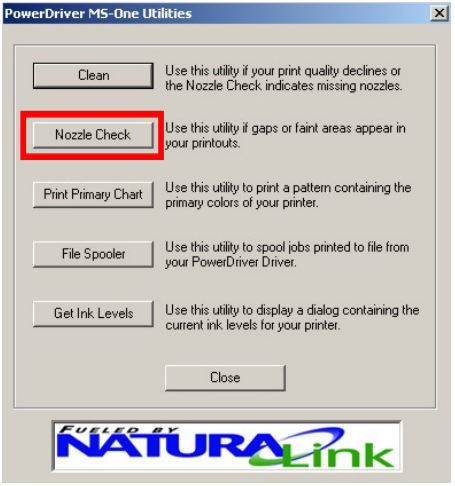
2. Place an 8.5 x 11 or larger piece of paper on the jig so that the outside edge of the paper hangs over the jig and aligns with the outside edge of the conveyor belt.

3. Press forward key until the jig is completely back to the printing origin (photocell limit).

If you open the top cover of the printer and look down to the paper it should be in the position shown to the right.

4. Open the MS-One PowerDriver and select the Utilities button. Another pop-up window will appear showing the utility options. Select the nozzle check option.




PowerDriver MS-One Utilities
Clean
Use this utility if your print quality declines or the Nozzle Check indicates missing nozzles.
Nozzle Check
Use this utility if gaps or faint areas appear in your printouts.
Print Primary Chart
Use this utility to print a pattern containing the primary colors of your printer.
File Spooler
Use this utility to spool jobs printed to file from your PowerDriver Driver.
Get Ink Levels
Use this utility to display a dialog containing the current ink levels for your printer.
Close

5. Once the printing is finished, the printer will automatically bring the jig support forward so that the operator can check the printed results. If the nozzle check pattern has no gaps or lines, then click Finish.

6. If the pattern has gaps or white lines click Clean to clean the print head.

- After cleaning, run the nozzle check again. If no gaps or lines appear, you are ready to print. If gaps or white lines continue to appear run the clean utility again. **Note: Do not run the clean utility more than 3 or 4 times. If your nozzle pattern does not clean up after that time, contact Technical Support for more assistance.**

7. Advance the jig forward and remove the paper. Proceed with printing using the *Printing Instructions* on the previous page.

Applications

T-shirt - long sleeve and short sleeve. Sweat shirts and Terry towels.

- Adjustable platen accommodates range of product widths

Apparel Specifications

Printer currently works with whites and pastel shirts which represent 70% of the T-shirt market.

- Works with 100% cotton and cotton blends.

PowerDriver MS-One

User Guide

For distribution with the MS-One printer only
NOT FOR RESALE

Rev 8.0.0

Introduction

Obtaining the benefits of PowerDriver color management is now incredibly easy - simply print from your application with PowerDriver MS-One rather than the Epson printer driver. PowerDriver MS-One prints your image just like the Epson printer driver except for the colors. Watch how it magically makes NaturaLink colors picture perfect!

PowerDriver MS-One delivers both convenience and the highest quality NaturaLink color management technology. The innovation demonstrated by PowerDriver MS-One is the result of our dedication to you, our customers. At Sawgrass Technologies, we are focused on delivering the highest quality digital printing technology available. We fully expect that you will be “wowed” by the results you obtain with NaturaLink and PowerDriver MS-One. PowerDriver MS-One runs under Windows 2000 and Windows XP.

System Requirements

Minimum Hardware:
Pentium 4 – 2.5GHz Processor
512 MB System Memory
80 GB Hard Drive
USB 2.0

Recommended Hardware:
Pentium 4 – 3.0GHz Processor
1 GB System Memory
80 GB Hard Drive
USB 2.0

Setup Instructions – Windows 2000 and XP

Product Overview

PowerDriver MS-One is color management software that has been written as a Windows printer driver. It is designed to work with the MS-One t-shirt printer and Sawgrass NaturaLink inks. The installation program will install Sawgrass color management software, the Sawgrass PowerDriver MS-One printer driver software, and ColorSure tools and utilities.

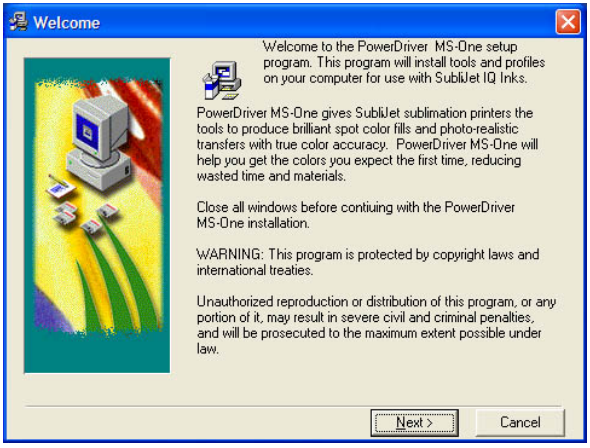
Quick Start

1. Unpack and setup printer as described in the MS-One manual.
2. Insert the PowerDriver MS-One CD into the CDROM drive on the computer and install PowerDriver MS-One as outlined below.

Step By Step Installation

To get started printing as soon as possible, these are the steps Sawgrass recommends you perform while setting up your printer driver software.

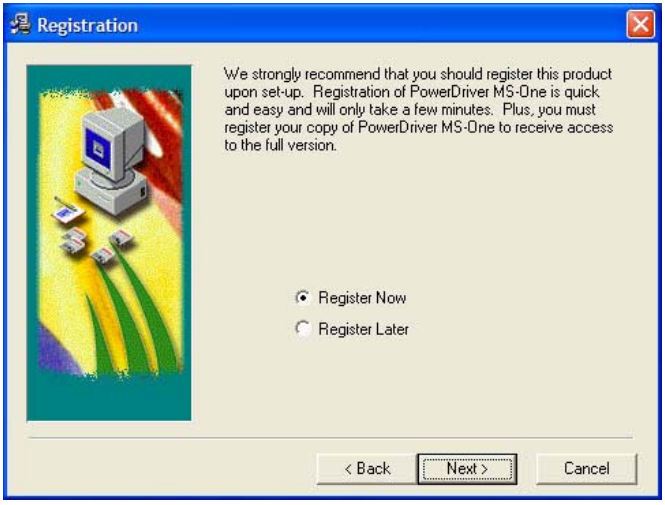
1. Setup the printer according to the MS-One instructions.
2. Install Sawgrass NaturaLink inks.
3. Insert the PowerDriver MS-One CD into your CDROM drive. The installation program should run automatically. (If the program does not automatically run, click Start, Run. Browse to your CDROM drive, and click on Setup.)
4. The Welcome screen is displayed. Click Next to proceed.


Welcome
Welcome to the PowerDriver MS-One setup program. This program will install tools and profiles on your computer for use with SubliJet IQ Inks.
PowerDriver MS-One gives SubliJet sublimation printers the tools to produce brilliant spot color fills and photo-realistic transfers with true color accuracy. PowerDriver MS-One will help you get the colors you expect the first time, reducing wasted time and materials.
Close all windows before contiuing with the PowerDriver MS-One installation.
WARNING: This program is protected by copyright laws and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

5. The License Agreement is displayed next. Select the appropriate choice for acceptance of the Licensing Agreement to continue.

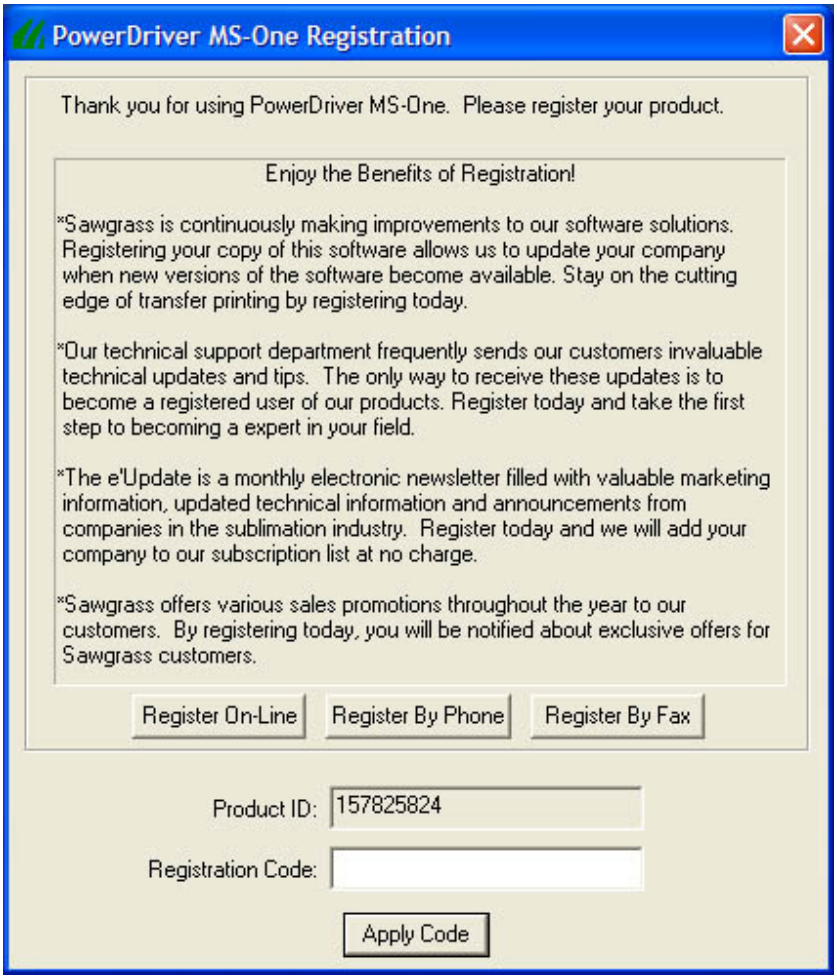
License Agreement
1) PLA Text
END-USER LICENSE AGREEMENT FOR SAWGRASS SOFTWARE - PowerDriver MS-One (TM)
IMPORTANT-READ CAREFULLY: This Sawgrass Technologies, Inc. End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and Sawgrass Technologies, Inc for the Sawgrass software product identified above, which includes computer software and may include associated media, printed materials, and "online" or electronic documentation ("SOFTWARE PRODUCT"). By installing, copying, or otherwise using the SOFTWARE PRODUCT, you agree to be bound by the terms of this EULA. If you do not agree to the terms of this EULA, do not install or use the SOFTWARE PRODUCT.
Reject License Agreement
Accept License Agreement
< Back
Next >
Cancel

6. If you have not previously registered PowerDriver MS-One, you will be prompted to do so. Registering is the only way to take full advantage of the features in PowerDriver MS-One. If you choose to register later, select Register Later and click Next to proceed with the installation.


Registration
We strongly recommend that you should register this product upon set-up. Registration of PowerDriver MS-One is quick and easy and will only take a few minutes. Plus, you must register your copy of PowerDriver MS-One to receive access to the full version.
Register Now
Register Later
< Back
Next >
Cancel

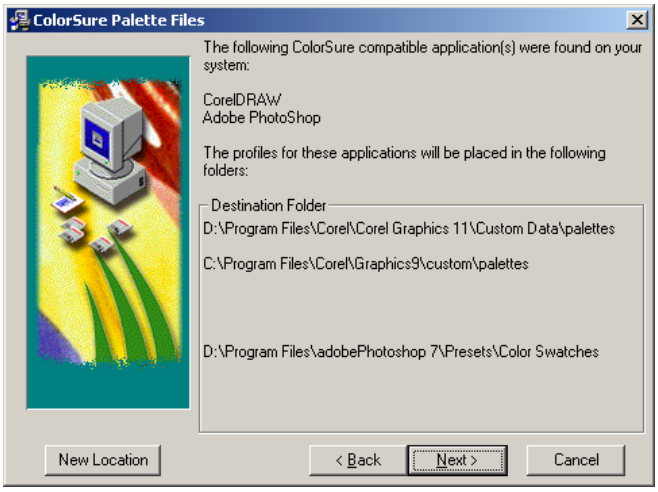
7. If you choose to register now, the registration screen will be displayed. To obtain your registration code you may do so in one of the following ways: Register on-line and receive your registration code via e-mail. Call Sawgrass Technologies, Inc. directly (843) 884-1575 and obtain your code over the phone. Send a fax and receive your registration code by fax.

To register, you will use your Product ID (displayed on the registration screen) to obtain a Registration code. You will need separate registration code for every machine on which PowerDriver MS-One is installed. Enter your registration code and click the Apply Code button.


PowerDriver MS-One Registration
Thank you for using PowerDriver MS-One. Please register your product.
Enjoy the Benefits of Registration!
*Sawgrass is continuously making improvements to our software solutions. Registering your copy of this software allows us to update your company when new versions of the software become available. Stay on the cutting edge of transfer printing by registering today.
*Our technical support department frequently sends our customers invaluable technical updates and tips. The only way to receive these updates is to become a registered user of our products. Register today and take the first step to becoming a expert in your field.
*The e'Update is a monthly electronic newsletter filled with valuable marketing information, updated technical information and announcements from companies in the sublimation industry. Register today and we will add your company to our subscription list at no charge.
*Sawgrass offers various sales promotions throughout the year to our customers. By registering today, you will be notified about exclusive offers for Sawgrass customers.
Register On-Line
Register By Phone
Register By Fax
Product ID:
157825824
Registration Code:
Apply Code

8. Sawgrass Technologies, Inc. provides ColorSure color palettes for use with Corel and Adobe. (Check the ColorSure section of the manual for information on how to use ColorSure to get perfect spot colors). If Setup detects either of these applications on your system, the palette files will be placed in the appropriate folder indicated in the Destination Folder box. Click Next to proceed with the installation.

9. The PowerDriver MS-One installation program will attempt to use plug-n-play to determine the port that the printer is connected to, click Next to continue. Note: Cancel any 'Found New Hardware' wizards that may start during this process, do NOT cancel any file copy process however.


ColorSure Palette Files
The following ColorSure compatible application(s) were found on your system:
CorelDRAW
Adobe PhotoShop
The profiles for these applications will be placed in the following folders:
Destination Folder
D:\Program Files\Corel\Corel Graphics 11\Custom Data\palettes
C:\Program Files\Corel\Graphics9\custom\palettes
D:\Program Files\adobePhotoshop 7\Presets\Color Swatches
New Location
< Back
Next >
Cancel

PowerDriver MS-One
The PowerDriver MS-One printer driver will be installed next. If prompted for a Digital Signature, please click YES to continue loading the necessary PowerDriver MS-One printer driver files.
Verify that the printer is currently powered on and connected to the computer with a communications cable. Then click Next.
Next >
Cancel

10. If you see the screen below, click Continue Anyway to proceed with the installation.

Hardware Installation
The software you are installing for this hardware:
Printers
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

11. Once the installation has completed, the Installation Complete screen will be displayed. Click OK to end the installation.

Using PowerDriver MS-One in Windows 2000 / XP

PowerDriver MS-One is simple to use. Whenever you have NaturaLink inks in your printer, you should print using PowerDriver MS-One. **Do not** print to your Epson printer with the Epson printer driver; printing with the Epson driver will not give you the benefit of color management.

Quick Start Example (Corel Draw)

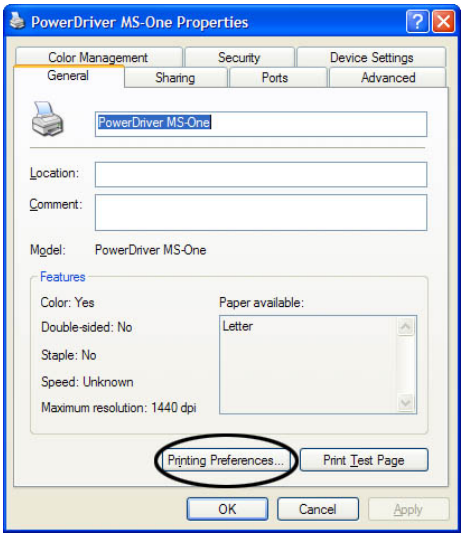
1) Open/Create an image in Corel Draw.
2) Select print from the File menu.
3) Select the PowerDriver MS-One printer.
4) Use the properties button to access and set the Color, Output, Resolution, and Advanced options.
5) Click Print.

Setting PowerDriver MS-One printer properties

To configure PowerDriver MS-One for the correct settings, you must display its printer properties. There are two ways to display the printer properties:

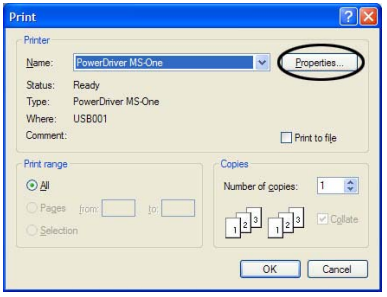
From the Windows Desktop:

1. Click on Start> Settings> Printers.
2. Right-click on your PowerDriver MS-One printer.
3. Select Properties from the pop-up menu.
4. Select the Printing Preferences button.



From an Application:

1. Select File, Print Setup.
2. Choose the PowerDriver MS-One printer from the list of printers.
3. Click the Properties button.

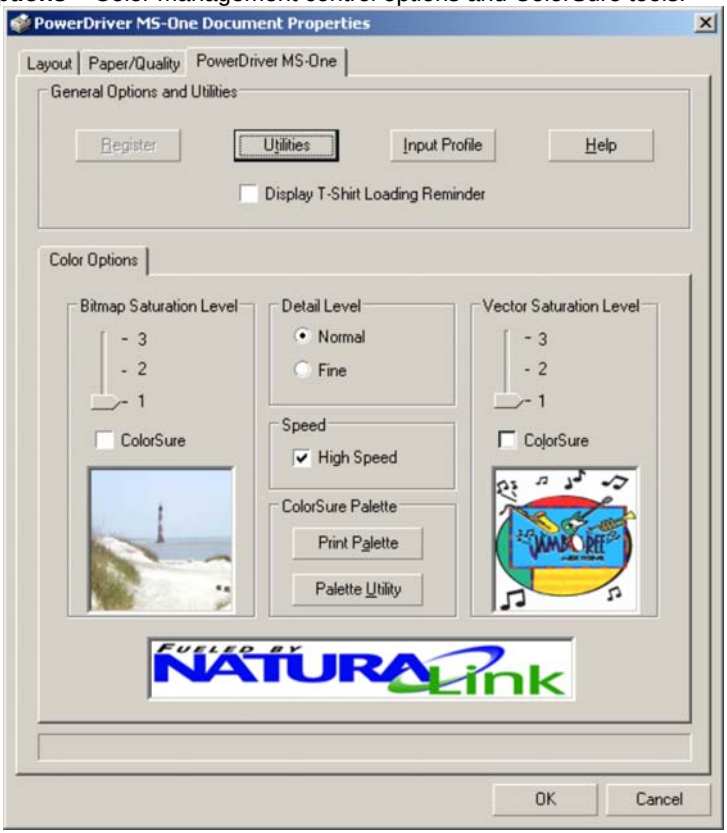


PowerDriver MS-One Properties Overview

The following figure shows the printer properties for a registered version of PowerDriver MS-One. The Advanced Color Options tab and the Print Palette functions will not be available if the product has not been registered.

There are two main property groups;

1. **General Options and Utilities** – Utilities for printer maintenance, online help, product registration, and setting input profiles
2. **Color Options** – Color management control options and ColorSure tools.



PowerDriver MS-One Color Options

Group 1 – General Options and Utilities

Register – If the PowerDriver MS-One product has not been registered, click this button for instructions on how to register the product and unlock all the features.

Utilities – Click this button to display a utilities screen. From the utilities screen you can print a nozzle check, run a print head cleaning cycle, spool a print file to the printer, print a page of primary ink colors, and view current ink levels.

Input Profile – This option allows you to specify an input profile that the driver will use when color correcting your image. If you are printing scanned artwork and your scanner manufacturer provided ICC profiles for your scanner model, select the profile here. In order to select a profile IT MUST BE INSTALLED ON YOUR MACHINE. To install a profile on your machine, right click on the profile file name and select "Install".

Help – This will display a help dialog box for an easy overview of the PowerDriver MS-One driver functions and settings. It also contains a link to the Sawgrass Technologies website.

Group 2 - Color Options

Overview

This tab gives you access to all of the color management controls available in PowerDriver MS-One. Color correction allows you to create t-shirts from all kinds of images, from photorealistic images to spot color logos. For maximum flexibility, PowerDriver MS-One lets you color correct bitmap and vector elements differently, even if they are in the same graphics file. For example, if you scan a photograph and import it into CorelDraw, PowerDriver MS-One will use the color management settings that have been selected for Bitmap. If you then add text on top of the bitmap image, PowerDriver MS-One will use the color management settings that have been selected for Vector. The photograph and the text will be color corrected differently! Why? You can now print images with realistic photographic backgrounds that have vivid spot color text.

Vector and Bitmap Explanation

Bitmaps are a grid of pixels. Bitmaps come from digital cameras, scanners, and photo cds. Bitmaps can also be created in applications like Corel PhotoPaint or Adobe PhotoShop. Bitmaps have file extensions like GIF, JPG, BMP, and TIF. Vector components consist of shapes, curves, lines, and text. They are created in programs such as CorelDraw and Adobe Illustrator. Higher end programs like CorelDraw can combine Vector and Bitmaps into a single image. As a rule of thumb, if the object in your image is made of curves, text, shapes, or fills, it will be color corrected using the PowerDriver MS-One Vector settings. All other image types will be color corrected based on the PowerDriver MS-One Bitmap setting.

Color Correction Settings

Bitmap/Vector Saturation Level - This option controls the intensity of the output from the MS-ONE. For most images a Saturation level of one should produce vibrant images. In some cases, such as black text on a light colored shirt you may want to increase the Saturation Level to 2 or 3 to increase the intensity.

Detail Level - Set the detail level to "Normal" when printing spot colors or logos. Use the "Fine" setting when printing photographs

ColorSure Enhancement - The ColorSure enhancement is used to replace specific colors in your image with a spot color chosen from the ColorSure palette. This resulting spot color enhancement is not affected by color setting. A ColorSure spot color will ALWAYS print the same. See Appendix C for an overview of ColorSure.

Speed

High Speed – The Speed option turns bi directional printing on or off. When printing fine details such as small fonts or thin lines it may be necessary to "uncheck" the speed option to produce images with the best clarity.

Print Palette Button – Prints the ColorSure palette for the selected substrate. ColorSure is a method for reproducing exact spot colors. The two main components are; 1) the printed palette and 2) the CorelDraw, Corel PhotoPaint, and Adobe swatches. For a complete description on how to use ColorSure to get perfect spot colors, see appendix C.

Appendix A: Network Printing in Windows 2000, XP

Network printing with PowerDriver MS-One in Windows 2000 and Windows XP is simple. Before a network printer can be used it must be installed on the network and shared.

Host Machine (Server)

The server machine must have installed the printer and have the printer shared. To install the networked printer, run Start | Setting | Printer | Add Printer. The Wizard will guide you through setting up the printer. When prompted, choose “Network Printer” and browse to the server machine to locate PowerDriver MS-One.

Appendix B: Defeating Application Color Management

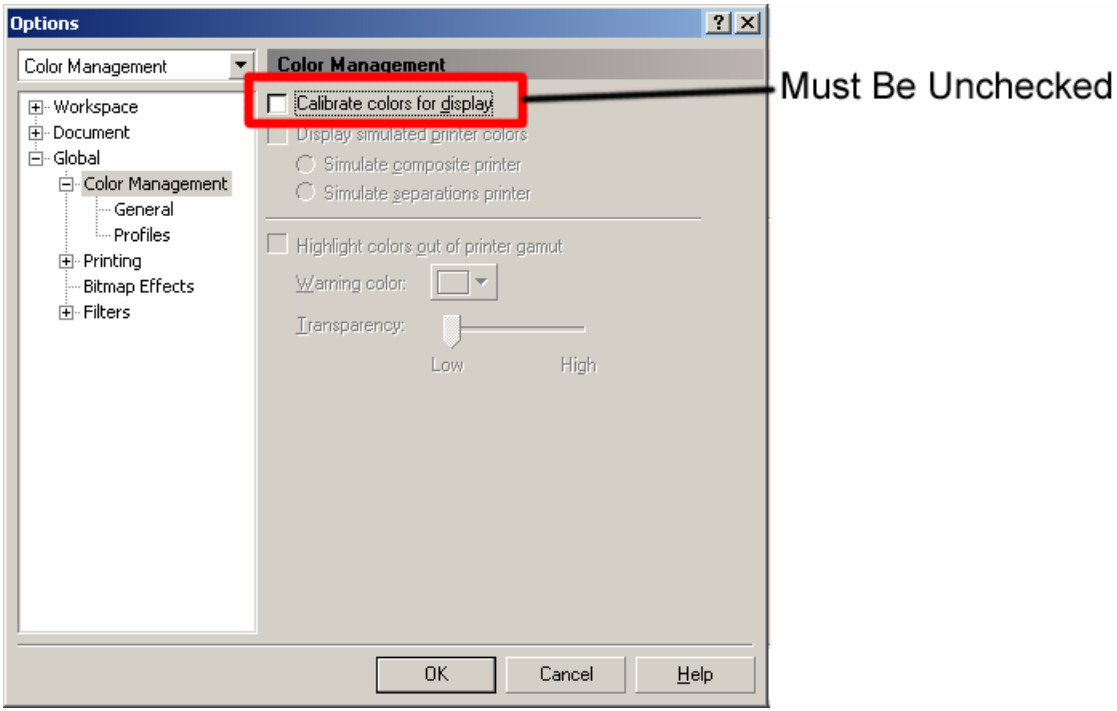
PowerDriver MS-One provides a complete color management solution for your NaturaLink printing. **It is extremely important that you turn off any color matching features associated with your design software.** An explanation of how to disable print-time color management in several popular design packages follows:

CorelDraw™ version 9

Create a new graphic.

From the main menu choose Tools, Color Management. The Color Management dialog box is displayed.

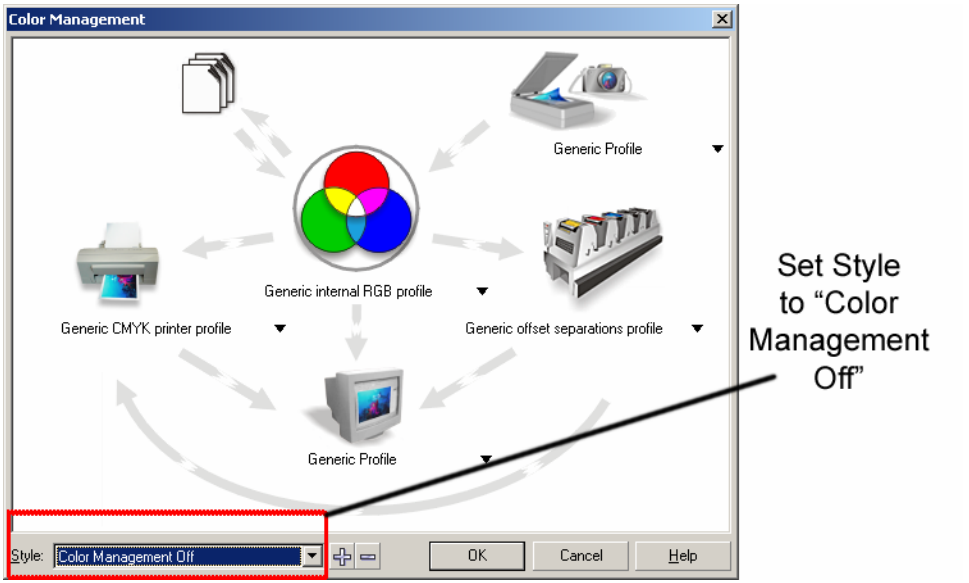
In the Color Management window (see figure below), UNCHECK the Calibrate colors for display box.



CorelDraw™ version 10, 11 and 12

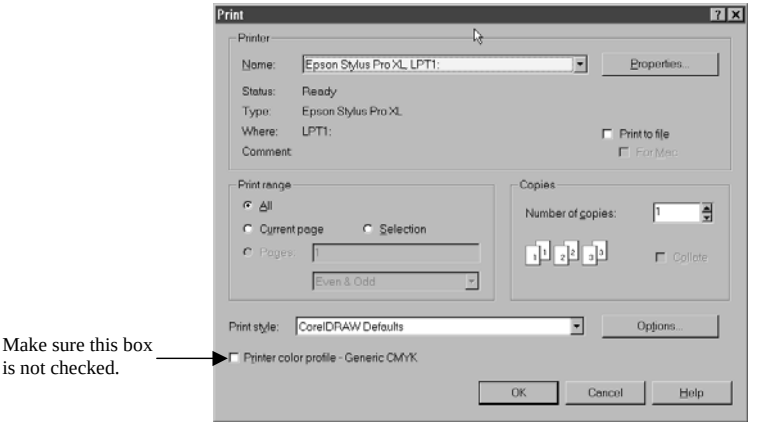
Create a new graphic.

From the main menu choose Tools, Color Management. In the Color Management window (see figure below), set the Style option to Color Management Off.



CorelDraw ™ (version 5, 6, or 7)

If you are using **version 5, 6, or 7** of **CorelDRAW**, ensure that you have the Printer Color Profile check box unchecked. This setting is found in the lower left of the Print dialog window. See figure below.



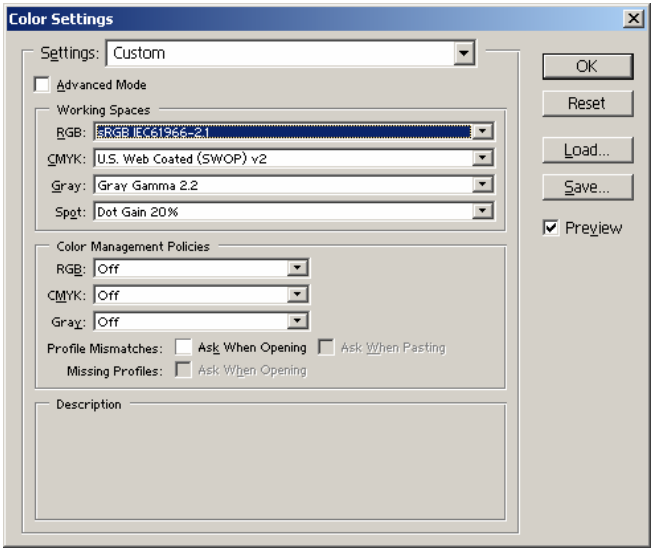
CorelDRAW 5, 6, and 7 print dialog

Adobe Photoshop™ 6

Color Setup

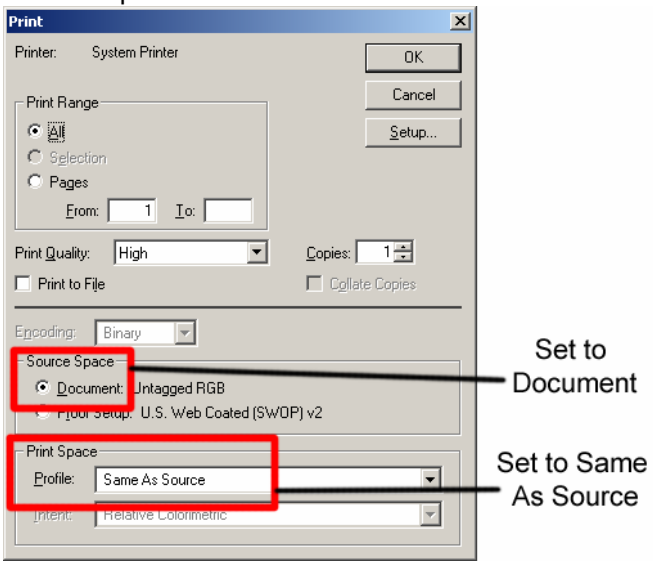
From the main menu choose Edit, Color Settings. On the Color Settings dialog box:

a. Set all Color Management Policies to Off
b. Uncheck Profile Mismatches
c. Uncheck Ask When Opening.

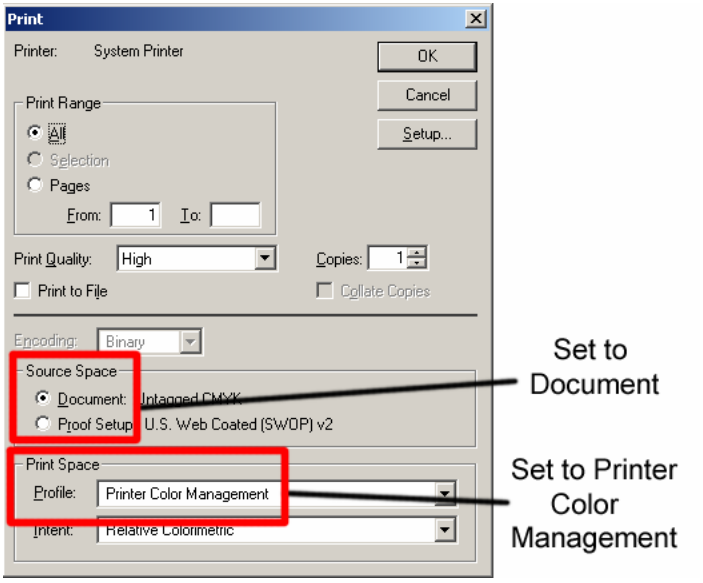


To Print RGB Graphics

Choose File, Print, and set the options as described below:

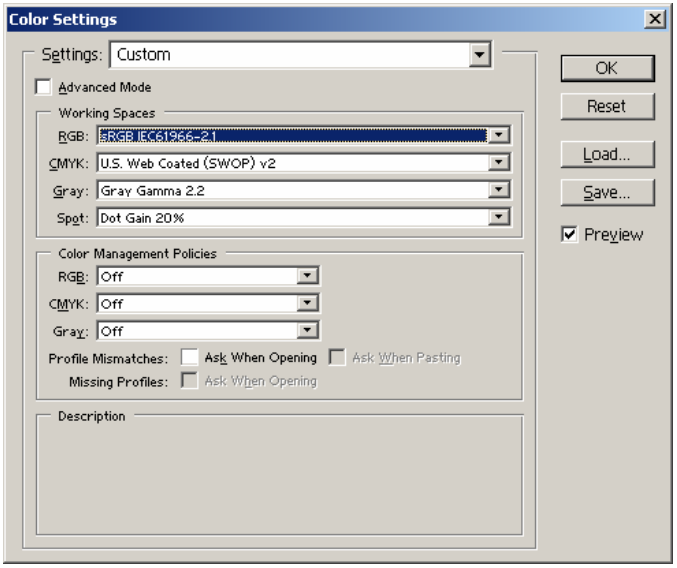


To Print CMYK Graphics
Choose File, Print, and set the options as described below:



Adobe Photoshop™ 7, CS, and CS2

Color Setup
From the main menu choose Edit, Color Settings. On the Color Settings dialog box, turn all Color Management Policies off. Turn off Profile Mismatches.



To Print:

Always select File, Print with Preview. On the print dialog page, set the options as described below:

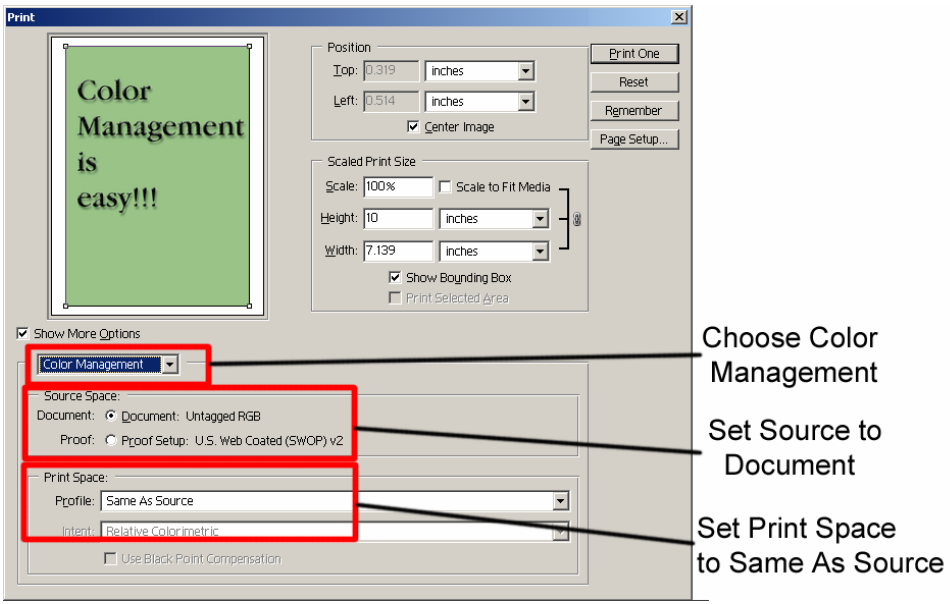
a. Check Show More Options

b. Choose Color Management

c. Choose Document as Source Space

d. Choose Same as Source for Print Space

From the Color Management drop option list, make sure that Source is set to “Document” and Print Space is set to “Same As Source”.



Appendix C: Using ColorSure™ and Custom Palette

I. Introduction

ColorSure is a method for reproducing exact spot colors. There are four main components of the ColorSure System: 1.) the printed palette; 2.) Color Finder; 3.) Custom Palette; and 4.) the CorelDRAW and Adobe application palettes / swatches.

1. **ColorSure Palette**: This is your main color palette that includes a wide variety of 152 commonly used colors.
2. **Color Finder**: If a color you need is not on the ColorSure palette, the Color Finder tool allows you to locate the exact custom color you are looking for.
3. **Custom Palette**: With the Custom Palette feature, you can add new custom colors to the existing ColorSure Palette mentioned in step 1.
4. **Application Palettes**: You can add your Color Finder colors to an existing application palette, or you can add multiple custom colors to new, custom palette files (*.cpl, *.acl, etc.).

II. Printing the ColorSure Palette

The first thing you will want to do is to print your ColorSure palette to the shirt you will be using. Most likely you will have customers who desire precise colors. Having your ColorSure palette available allows the customer to choose the color from the palette that is the closest match to what they want, and this gives you a starting point for finding the exact custom color that will match your customer's needs.

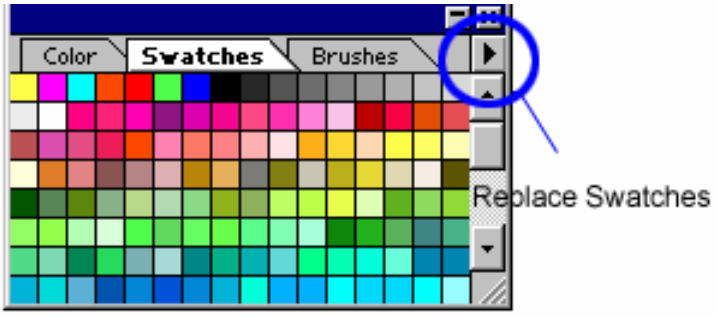
To print the ColorSure palette, follow the steps below:

- Click 'Start' and navigate to the 'Printers and Faxes' folder. Right-click on your PowerDriver MS-One printer and select 'Printing Preferences' from the menu. You may also open PowerDriver from within an Adobe or Corel program by going to File, Print, and choosing the PowerDriver printer from the pull-down menu. Click Properties to open PowerDriver.
- Select the color settings and the speed (single pass, double pass) that you wish to print the palette, and click the box 'Print Palette'.
- You now have a visual representation of how the ColorSure palette colors will appear on that particular substrate.

III. Designing Your Artwork

By picking colors from the ColorSure palette, you will be able to consistently reproduce colors in a reliable manner. To assist you in designing your artwork, PowerDriver installs three palettes: two for Adobe products and one for Corel products. These colors match the palette that is printed from within PowerDriver.

- To open the ColorSure Palette in Corel 10, 11, and 12, choose Window | Color Palettes | Open Palette. Select the file "MS-One_Rut.cpl, MS-One_Uni.cpl, or MS-One_Wil.cpl depending on which palette you wish to load."
- To open the ColorSure Palette in Illustrator, choose Window | Swatch Libraries | Other Library. Navigate to where it was installed to when you installed PowerDriver: C:\Program Files\Sawgrass\PowerDriver\Adobe Illustrator and hit Open. For easier access to the Palette file copy it from this [above] path to Illustrator10\Presets\Swatches and the palettes will show up in your pull-down list directly under the Swatch Libraries menu. Other versions of Illustrator will have similar steps.
- To open the ColorSure Palette in Adobe PhotoShop, choose the Swatches Palette, click the option arrow on the palette, choose Replace Swatches and pick the "MS-One_Rut.aco, MS-One_Uni.aco, or MS-One_Wil.aco" file.



HINT

After you have the ColorSure palette loaded into CorelDraw, move the cursor over each color. As the cursor hovers over each different color, the ColorSure name is displayed in the status area at the bottom of the screen.

IV. Using Color Finder

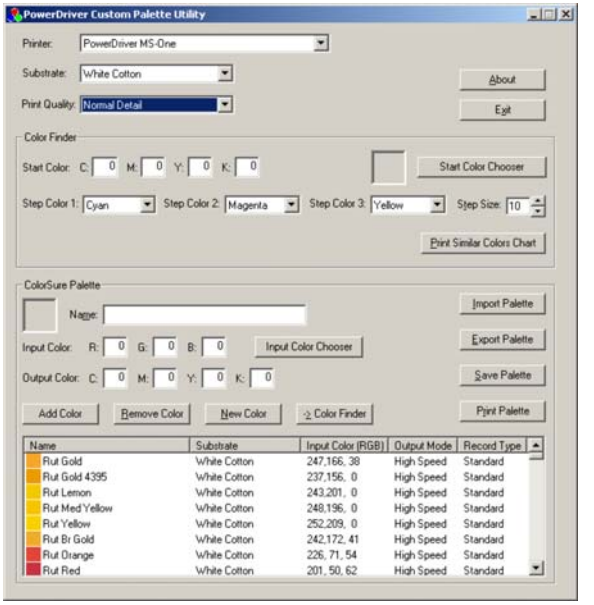
After printing the ColorSure Palette, you see that you have an array of colors to work with. There will be times, however, when the color you need is not included in the ColorSure Palette. This is a common example of when you will launch the PowerDriver Custom Palette Utility.

The Custom Palette Utility is a small program that coincides with PowerDriver to assist you in finding custom colors and making custom palettes.

Within the Custom Palette Utility is the Color Finder tool. This tool allows you to start with a specific color (e.g. navy blue) and find similar colors in the same family by adding and subtracting up to three colors (CMYK) called 'Step Colors.' For example, starting with navy blue with a CMYK value of 60,60,0,40 and choosing two step colors (e.g. cyan and magenta) would expand the original navy blue in four directions (more cyan, less cyan, more magenta, and less magenta). This expanded color chart is outputted directly to your MS-One printer.

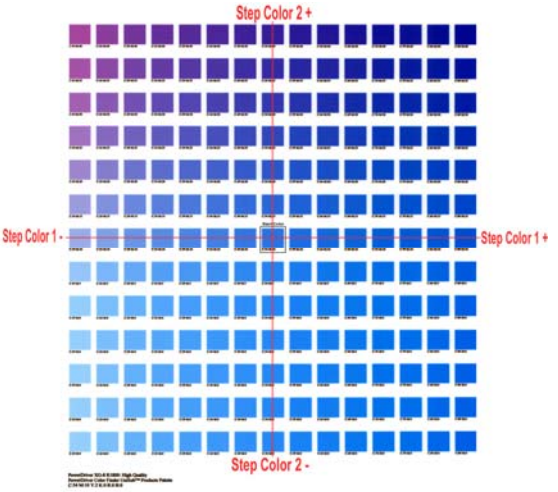
How to use Color Finder:

- First, open the MS-One Printing Preferences window as instructed on pg. 8.
- At the bottom of the window, click the **Palette Utility** button; this will open the **Custom Palette Utility** window.
- Select the appropriate settings for Printer, Substrate, and Print Quality. Then click the **Start Color Chooser** button and select your desired starting color from the basic colors or the color matrix. To use the color matrix, click anywhere in the matrix window. You can use the slider at the right of the matrix to adjust luminosity. Clicking 'OK' will automatically fill the CMYK boxes with the corresponding values. If you do not wish to use Color Chooser, you also have the option to manually enter the **Start Color** values in the CMYK boxes.
  - For advanced users, CMYK values can be determined by printing out a Custom Palette, which is outlined in the next section.



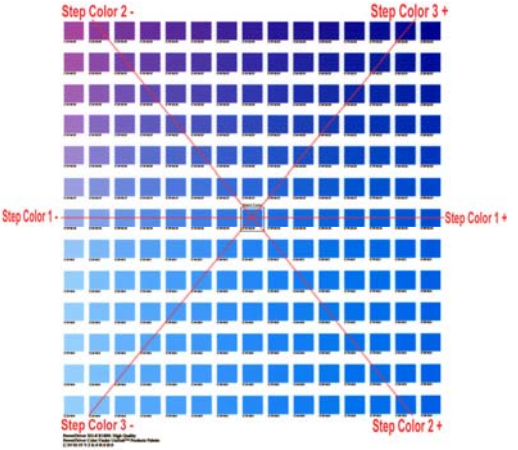
Custom Palette Utility

- You may alter the chosen start color's CMYK value by selecting two or three **Step Colors**. Using multiple step colors will present you with a greater range and variety of colors to choose from.
  - For instance, if you choose to modify your Start Color with two steps, then Step Color 1 will change its values on the X (horizontal) axis and Step Color 2 will change its values on the Y (vertical) axis.



Color Finder Palette with two Step Colors

  - If you modify your Start Color with three steps, Step Color 1 will remain the same. However Step Color 2 and Step Color 3 will form an imaginary 'X' and their values will change on opposing diagonal Y axes.



Color Finder Palette with three Step Colors

- Next, determine what **Step Size** you want to apply to the Color Finder palette. This is simply a question of how much you want your Start Color to fluctuate. If your Start Color is close the color you are looking for, use a low Step Size (i.e. 5-10). However, if your start color is not close to what you are looking for, use a higher Step Size. You can enter any Step Size value between 1 and 40.
  - As an example, let's say your Start Color is C:20, M:100, Y:150, K:0 and you select Cyan and Magenta to be your Step Colors. You also enter a Step Size of 10. When the 'Print Similar Colors Chart' button is clicked, your Start Color will be in the middle of the Similar Colors Chart and from there each color will vary the Cyan and Magenta values by 10.
- When you are finished selecting the Start Color, Step Colors, and the Step Size, click on the **Print Similar Colors Chart** button. This will print your custom Similar Colors Chart directly to the MS-One.
- After printing the Color Chart, try to match your desired color to one that is on the palette. If you find a suitable match, you are finished using the Color Finder tool. Move on to **Section V. The Custom Palette**.
- If you couldn't find an accurate match on the first printed Similar Colors Chart, don't worry. Follow the easy steps below, and you will find a more suitable custom color.
  1. First, try to locate a new Start Color from the chart that is closer than the original color.
  2. Next, after finding a more suitable Start Color, write down that color's CMYK value. Here is how to obtain this value. There are numbers under each color that are dependant upon which Step Colors you chose. For example, it might say C:70 M:120. Take note of these values. Then, at the bottom left of the Color Finder palette you will see a full set of CMYK values. The new Start Color's CMYK value would be C:70, M:120 and whatever the YK values are from the full set.
  3. Lastly, plug the CMYK values for the new Start Color into the boxes in Color Finder, choose your Step Size, and click on Print Similar Colors once again. Continue with steps 1-3 until you find your desired color.

V. The Custom Palette

Let us assume that you have found the exact color you need using the Color Finder tool. What you will want to do next is apply these custom color values to either an existing palette, or to create a new custom palette altogether. This allows you access to this color again should the same job arise.

How to use Custom Palette:

- First, you need to assign the CMYK values of the matched color from the Similar Colors Chart to the **Output Color** CMYK fields in the Custom Palette section.
- Give your new custom color a descriptive **Name** in its designated field (e.g. IBM Blue).
- Next, assign an RGB **Input Color** value. There are two methods to establish this value.
    1. If you have the original file, sample the color that was matched in your graphic design application with the eye dropper tool. This will give you the RGB value of that color. Input this value into the RGB Input Color fields of the Custom Palette section.
    2. If you do not have the original file, or the artwork has not yet been designed, simply click on the 'Input Color Chooser' button, and then click on "Define Custom Colors". From the color matrix, find a color that closely resembles the color that you are adding to the custom palette. At the bottom-right of the color matrix window are the RGB values. Simply click 'OK' and the RGB Input Color values will be automatically entered. Please take note of these RGB values for later use in your design applications.
- Click the **Add Color** button. A window will pop up asking you whether you want to add the color to the palette for all substrates, or just the current substrate. Click 'YES' here unless you have the same custom color saved on palettes for other substrates. Another window will then ask you if you want to save the custom color for all resolutions or just the current one. Click 'YES' here unless you have the same custom color saved on palettes for other resolutions.
- Lastly, click the **Save Palette** button. When finished, simply Exit out of the window.

***** The 'Import Palette' and 'Export Palette' buttons are convenient to have in the event you need to transfer palettes to and from different computers.

VI. Adding Swatches to your Application Palette:

It is possible to add your custom color(s) swatch to an application palette as well. You will need to take note of the Input Color RGB value that you assigned in the previous step in order to create the new swatch. Refer to your specific design application software's manual for instructions on this.

Tips for Successful Printing

PRINTER

- Make sure the jig is placed properly on the conveyor belt. Placing it too far to one side will cause your printed image to be off center on your garment.
- Make sure the photocell and reflector are setup properly to stop jig at the proper position for printing. See the section entitled *Printing Procedures.*
- Make sure the print head is adjusted properly or striking will occur on the garment if it's too high and the image will look faded if it's too low.

PRINTING

- Make sure that the garment is placed flat on the jig and all of the wrinkles are smoothed out. Not smoothing wrinkles will cause white areas in the image.
- The jig must be sent forward before the print button is selected. If not, the printer will print on the belt. To clean ink from belt, use Simple Green cleaning solution.
- DO NOT touch the final printed image as it is not dry until heat pressed.

TRANSFERRING

- Make sure that blotter paper is used over the image when transferring to eliminate ink on the heat platen.
- Gently place the blotter paper over the image – DO NOT pat or rub sheet across the image as it will smear.

Supplies & Equipment

The MS-One, fueled by NaturaLink™, is sold through a network of Authorized NaturaLink™ Channel Partners. A full listing of authorized resellers is available on our Web site at www.sawgrassink.com.

Operating Conditions

Certain environmental conditions should be taken into account for the operation of NaturaLink™, including temperature and relative humidity.

- Operating conditions are 65 ~ 80 °F with 35~60% relative humidity.
- Optimum operating conditions are 70 ~ 75 °F with 40~50% relative humidity.

Storage

- NaturaLink product should be stored in an environmental controlled room with a temperature range of 50 ^{o}F ~ 75 ^{o}F.
- Do not expose NaturaLink™ cartridges directly to light, especially sunlight, for extended periods.
- For best results, install your NaturaLink™ cartridges by the date on the cartridge. Please refer to the individual ink bag/cartridge for the specific ink expiration date.

Troubleshooting

The troubleshooting tips found in this section relate mainly to problems that can be seen in transferred NaturaLink™ images.

The colors in my transferred image are incorrect

- The image may need color adjustment. Use PowerDriver MS-One color matching software. For more information on how to use this software, please see the section entitled PowerDriver MS-One *User's Guide*.
- Ensure you used the right printer driver and driver settings. Please see the section entitled PowerDriver MS-One *User's Guide*.
- Ensure you pressed the item with the proper time, temperature, and pressure. For guidelines see the section entitled *Printing Instructions.*
- Verify all colors print correctly. Run the Nozzle Check utility and clean the print heads as required.

Before or after pressing, there are streaks of ink showing in non-printed areas.

- Verify that the print head isn't touching the garment during printing. See the section entitled *Printing Procedures, Positioning and Adjustments.*
- Ensure that the wet image didn't rub against the garment when removing from the printer or during pressing.
- Ensure you are using blotter paper when pressing the garment. When placing blotter paper on image for pressing, ensure that it's not smearing the image.

My image looks good but it washes out

- Ensure you pressed the garment with the proper time, temperature, and pressure. If so, try pressing longer to ensure that the dyes are penetrating the fibers sufficiently. For guidelines, see the section entitled *Printing Instructions.*

Colors are light and splotchy or the image looks blurred

- Ensure you pressed the item with the proper time, temperature, and pressure. For guidelines, see the section entitled *Printing Instructions.*
- Verify your printer driver settings are correct. Please see the section entitled PowerDriver MS-One *User's Guide* for additional information.
- Verify that the printer's print heads are properly aligned.

My image has gaps or bands present

- Ensure that all of the printer's nozzles are firing properly. Perform a Nozzle Check

from the *Utility* tab of your printer driver.

- If one or more of the nozzles fail to print, perform a Print Head Cleaning.
- Make sure that the garment is placed flat on the holder and that all wrinkles are smoothed out prior to printing.

MAINTENANCE

Head Cleaning

It is possible, due to residues or impurities that the printing head work incorrectly (bending, color lack, tonality variations, etc…). In this case, it is possible to enter the PRINTING DRIVER MENU at the voice “UTILITY” and launch the program “HEAD CLEANING” which is executed by the printer. It could be necessary to launch the “HEAD CLEANING” again, but if after various cleanings (4-5 times) the problem still exists, please contact Technical Support.

Waste Ink Tank

In the lower right side of the printer there is the waste ink recovery tank (**PHOTO 7.B**).

The machine automatically advices when the box is full. After having cleaned out the box, use the chip resetter to reset the device.

Note:
Over time, the pad in that box will become saturated and need to be replaced. You can purchase a new ink tank at www.epson.com .

The digital printing inks should not be dispersed in the environment, but collected and disposed by the proper collectors.

PHOTO 7.B

Power Cleaning

If the normal cleaning process is not sufficient to bring back a full nozzle check, a Power Clean maybe necessary. Only run a power clean when instructed by Technical Support. It takes a sufficient amount of ink and should only be run when all other troubleshooting methods are unsuccessful.

To run a Power Clean:

1. Press the **Menu** button
2. Press the down button until you see **MAINTENANCE** then press the **Menu** button again.
3. Press the down button until you see **PWR CLEANING** then press the Menu button again.
4. Follow the instructions on the LCD screen to raise or lower the ink levers.
5. Once the cleaning is completed the pause light will stop flashing.
6. Print a nozzle check to see if the cleaning was successful.

Technical Support

If you are having difficulties achieving good results from your MS-One or NaturaLink™ inks, you have several support options:

1. LEVEL ONE: Contact your authorized MS-One or NaturaLink™ reseller during their normal hours of operation for assistance. A full listing of authorized MS-One and NaturaLink™ Resellers is available on our Web site at www.sawgrassink.com. If you purchased direct, please contact Sawgrass Technical Support as listed below.

2. LEVEL TWO: Contact Sawgrass Technical Support

    a. Telephone: (843) 884-1575 between the hours of 8:00 AM and 5:30 PM Eastern Standard Time.

    b. Internet: Visit the *Technical Support* area of the Sawgrass Technologies, Inc. website at www.sawgrassink.com. The troubleshooting utility found here will provide you with solutions to some of the most common problems. You may submit a detailed description of your problem if you need further assistance.

    c. E-mail: You may e-mail Sawgrass Technical Support with a detailed description of your problem at naturalinksupport@sawgrassink.com.

    d. Fax: You may fax a detailed description of your problem to Sawgrass Technical Support at (843) 849-3847.

MS-One Warranty

Break/Fix Program:
If it's determined that the Level Three technical issue cannot be resolved then Sawgrass will send a replacement MS-One unit at no charge to the customer.

Standard Warranty:
- MS Italy warranties MS-One's Printer Systems (all systems except for the ink delivery system) for a period of one-year from invoice date to end-user. Sawgrass will act as the MS-One Authorized Service & Repair Center for North America. If any of the above printer systems fail to perform to specification and Sawgrass is unable to troubleshoot, then the end-user will be given a return merchandise authorization, shipped a unit as a replacement unit via business freight and the defective unit returned to Sawgrass in the same shipping crate.
- If the failure is related to the ink delivery system, Sawgrass will repair the printer at its own expense during the one-year warranty period.

Expanded Warranty:
- Sawgrass Technologies as the North American Service for the MS One fueled by NaturaLink on behalf of MS Italy is offering an expanded warranty to meet the need of those units who want a technician on site immediately. The program which will cost $1800 annually will commit to having a technician on site anywhere in the Continental US within 3 business days as part of the break fix program. This is for those customers who want the additional security that someone will be there if needed.